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ABSTRACT

Data in this report were collected from physics PhDs in the classes of 2000 and 2001, a time when the U.S. economy reached a peak and then entered a downturn. Data were collected from 72% of the class of 2001, a year in which there were 1,214 physics PhDs conferred. The unemployment rate for these classes remained low, at 3%. The proportion of new PhDs securing a postdoctorate fellowship has risen slightly in the past few years, so that they outnumber those accepting permanent positions, 49% to 47%. Starting salaries for the classes of 2000 and 2001 were very strong. University-based postdocs had a starting salary of $38,000, up 9% form the class of 1998, and the median starting salary for individuals accepting potentially permanent industrial employment was $75,000. (SLD)

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Initial Employment Report: Physics PhD Recipients of 2000 & 2001.

by Patrick J. Mulvey, Megan Henly and Casey Langer

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Initial employment outcomes for new PhD physicists are influenced by many factors, including career goals, the overall economic situation at the time of graduation and specific conditions in key sectors such as academia, federal labs and technologically centered industries. The data presented here were collected from physics PhDs in the classes of 2000 and 2001, a time when the nation's economy was reaching its peak and then entering a downturn. The unemployment rate for the classes of 2000 and 2001 remained low at 3%, compared to rates of 5 and 6% experienced by new physics PhDs in the early to mid 1990s. The proportion of new PhDs securing a postdoc has risen slightly during the last couple of years to the point where, in 2001, they once again outnumber those accepting permanent positions, 49% vs. 47%.

Starting salaries for classes of 2000 and 2001 were very strong. University-based postdocs had a median starting salary of $38,000, up 9% compared to the class of 1998. Starting salaries for individuals accepting potentially permanent industrial employment have risen 20% since 1998, with a median of $75,000.

An indicator of the strength or weakness of the job market is the length of time needed to secure employment. The PhD classes of 2000 and 2001 reported needing an average of 2.9 months to secure employment, while the class of 1992 searched for an average of 3.9 months.

These initial employment data are based on an annual survey of physics doctorate recipients conducted approximately six months after the end of the academic year in which they received their degrees. There were 1214 physics PhDs conferred in the class of 2000 and 1157 degrees conferred in the class of 2001. A detailed report concerning physics and astronomy enrollments and degrees in the US can be found at: http://www.aip.org/statistics/trends/undtrends.htm

We received initial employment information regarding 72% of these students. Initial employment information is obtained either through the direct response of the degree recipient to our mail or web-based survey, or through contact with the student's thesis advisor. These preliminary findings are a result of a combination of the data from the classes of 2000 and 2001 and describe the initial employment outcomes of new physics PhD recipients remaining in the United States, regardless of their citizenship.

The figures that follow represent the initial employment of new physics PhD recipients remaining in the United States, regardless of their citizenship.

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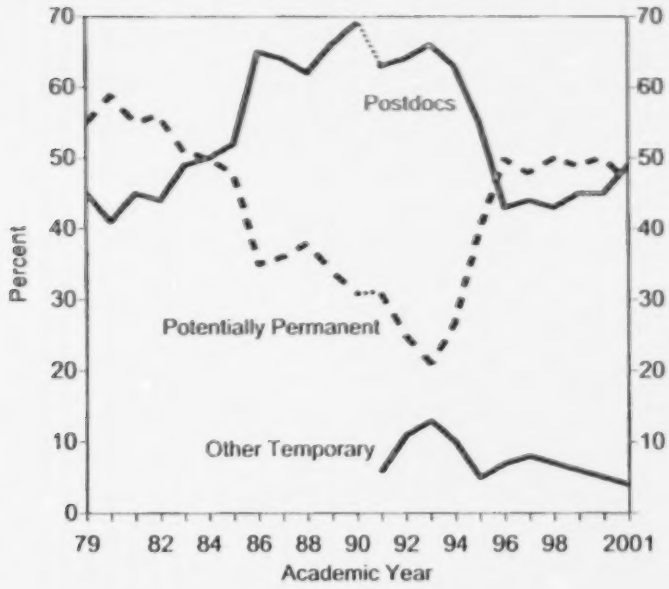
Trend Data on the Type of US Employment Secured by Physics PhDs in the Winter Following Their Degree, 1979-2001



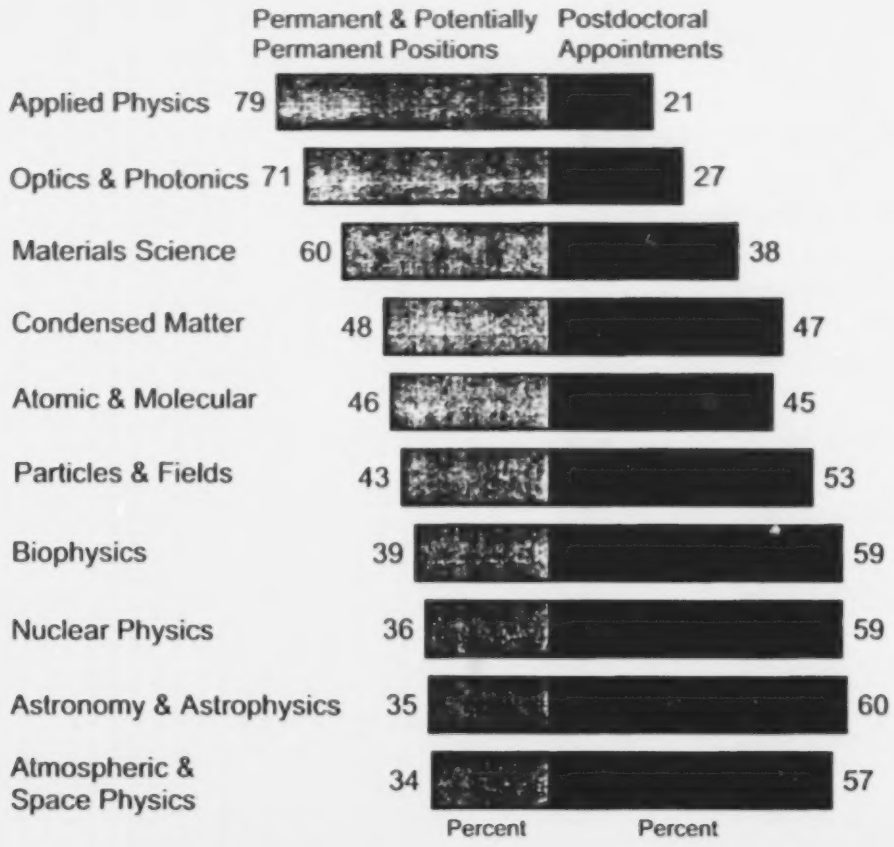
AIP Statistical Research Center, Initial Employment Survey

The proportion of new degree recipients accepting postdoctoral appointments fell dramatically between 1993 and 1996. This decline was balanced by a rapid increase in acceptances of potentially permanent positions. During the next four years, initial employment outcomes remained relatively stable. This was followed by an increase in the proportion of new PhDs accepting postdocs for the class of 2001. A rise in the proportion of postdocs has frequently coincided with weaker economic conditions and less favorable employment prospects for PhD scientists.

However, changes in economic conditions may not be the only factor influencing a greater proportion of PhDs to accept postdocs. The proportion of postdoc takers who indicated that they had accepted a temporary position because they found no suitable permanent employment has actually declined in recent years. A little more than a third of the postdocs and two-thirds of the other temporary employees indicated they had accepted their positions because of a lack of available permanent positions. It is important to note, however, that the answer to this question is very subjective, because a postdoc has traditionally been a necessary step toward a university faculty position and 60% of the postdocs who responded that no permanent post was available aspired to an academic career.

For some, such aspirations for academic positions may become a reality as the academic employment market had been relatively strong through the spring of 2002. More detailed information concerning the US academic workforce can be obtained at: http://www.aip.org/statistics/trends/emptrends.htm

Type of Initial Employment for Physics PhDs, Classes of 2000 and 2001.



Rows do not add up to 100% since they do not include PhDs who accepted other temporary positions.

AIP Statistical Research Center, Initial Employment Survey

The type of employment accepted by new PhDs is related, to some extent, to the subfield in which they did their dissertation research. Individuals with dissertation topics in fields that tend to be more applied, including optics and materials science, tended to accept a higher proportion of potentially permanent positions upon receiving their degree. By contrast, PhDs whose dissertations were in fields such as space physics, astrophysics and nuclear physics were more likely to accept postdoctoral positions.

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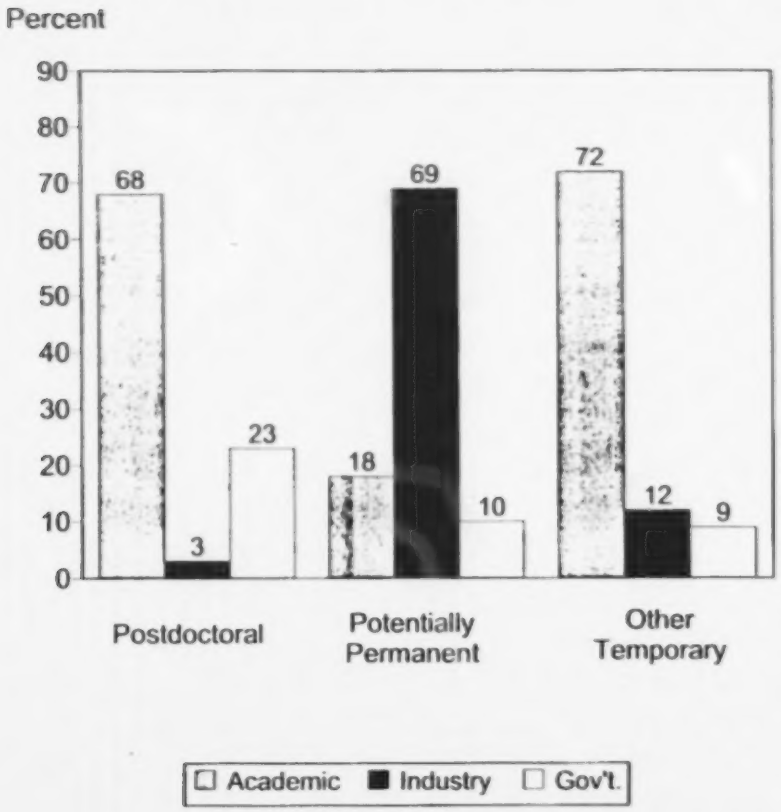
Employment Sector for Physics PhDs, Classes of 2000 & 2001.

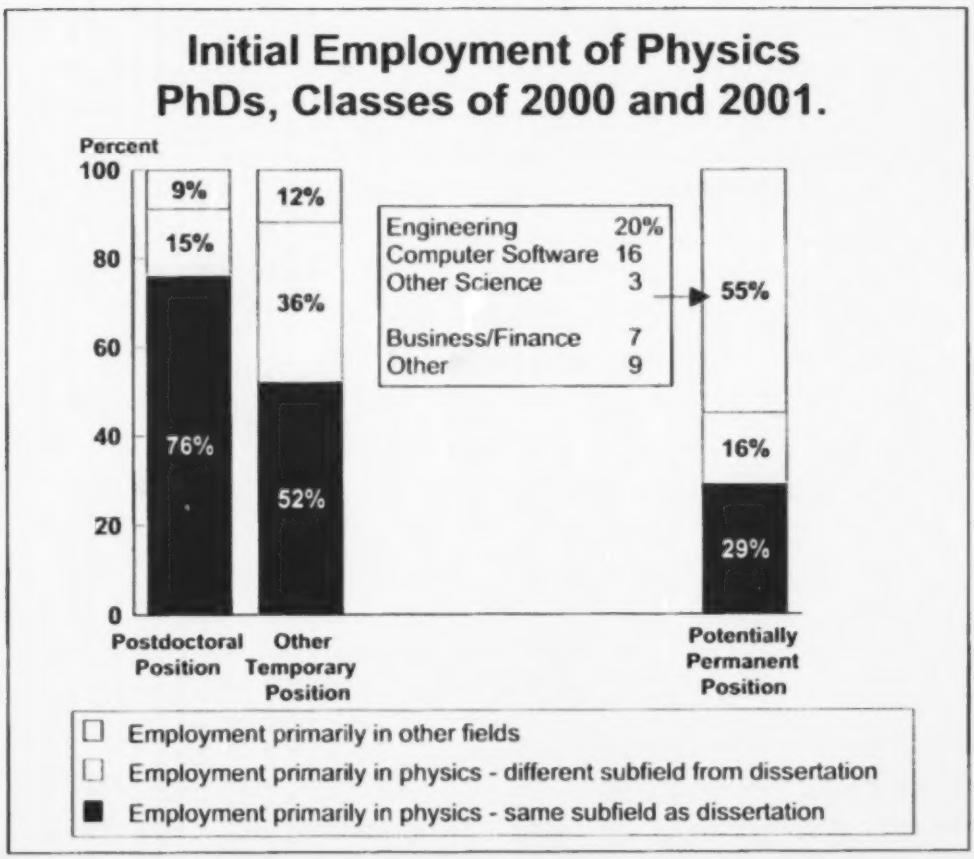


AIP Statistical Research Center, Initial Employment Survey

Most postdocs continue to be employed in the university and government sectors, while PhDs holding potentially permanent positions tend to concentrate in the industrial sector. In the late 1980's, only about 40-50% of the potentially permanent positions were in the private sector, compared to about 70% starting in the mid 1990s right up through the classes of 2000 and 2001. This shift reflects both an increase in the number of employers seeking physics PhDs and an increase in the number of physics PhDs seeking private sector employment.

Most of the temporary non-postdoc jobs accepted by physics PhDs are at colleges and universities. These positions include lecturer, visiting professor and research scientist.

The initial employment of a new PhD reflects a combination of dissertation subfield, job availability and long-range employment goals of that individual. The majority (69%) of the new PhDs holding postdocs indicated a 10-year career goal of working in the academic sector, where as only 24% of those with permanent jobs in the industrial sector indicated a similar goal. Curiously, 35% percent of the PhDs holding permanent positions in academia had a career goal that was not in the academic sector.



AIP Statistical Research Center, Initial Employment Survey

Overwhelmingly, postdocs tend to be employed in the field of physics as well as within the graduates' dissertation subfield. The average length of an initial postdoc position remains steady at two years.

In contrast, the majority of potentially permanent positions secured by physics PhDs are in related fields. The largest fraction of these positions are in engineering and computer-related fields. Although these positions are not specifically in the field of physics, the majority of individuals holding such positions are satisfied with their current position, find them professionally challenging and feel that physics was an appropriate background for the position.

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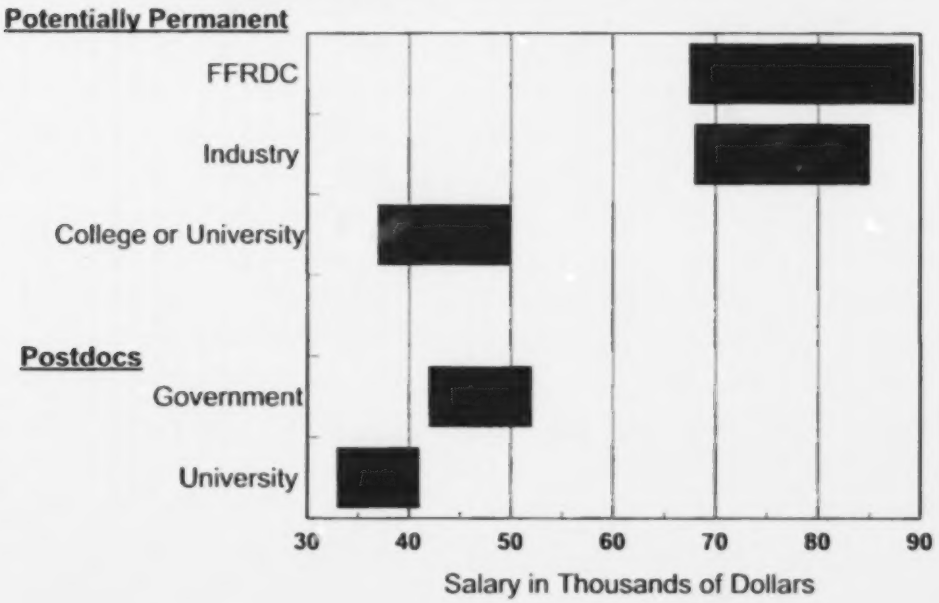
Typical Full-time Annual Salaries and Type of Position Secured by Physics PhDs in the Winter Following Their Degree, Classes of 2000 and 2001.

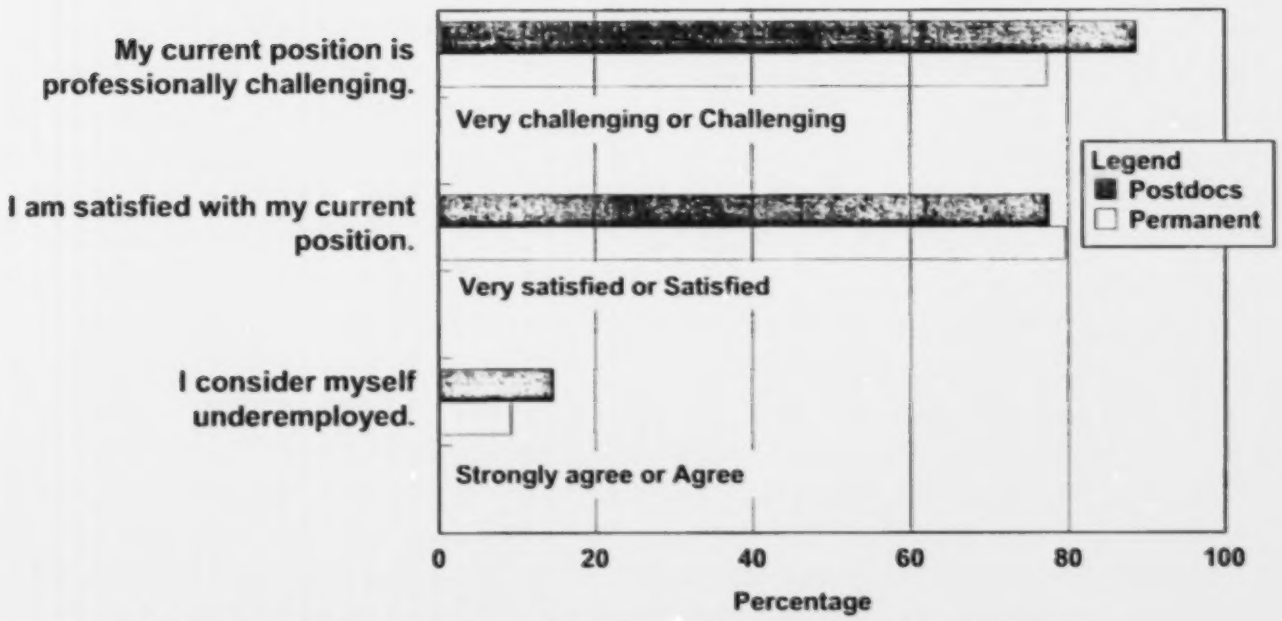


Note: Government includes FFRDCs and other federal agencies.

AIP Statistical Research Center, Initial Employment Survey.

The typical starting salary for a new physics PhD differs greatly by type of position and employment sector. For individuals accepting potentially permanent employment, the Federally Funded Research & Development Centers (FFR&DCs) and the industrial sector continue to offer starting salaries substantially higher than those offered by academic institutions. There is also a marked difference between salaries offered to postdocs, depending on whether they are employed in a university or government setting.

Responses to Statements Concerning Their Initial Employment, Physics PhD Class of 2001.



Note: Response options were on a four-point scale, with two positive and two negative choices. The bars above indicate the proportion of PhDs selecting the two positive responses.

AIP Stastical Research Center, Initial Employment Survey

Overall new physics PhDs view their current positions in a positive light. A slightly higher percent of individuals holding postdocs felt their current position was either challenging or very challenging than was true for those accepting potentially permanent positions. But, over 75% of the latter group report that their positions were professionally challenging. Few physics PhDs (14%) view themselves as being underemployed. Within this group a slightly larger percent of the postdocs considered themselves to be underemployed than do physicists in permanent positions.

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